775 Smart Wireless THUM™ Adapter

The Smart Wireless THUM adapter is a device for use on HART® communicating instruments such as the Fisher™ FIELDVUE™ digital valve controller. The THUM adapter adapts the wired HART protocol to the *Wireless*HART® protocol.

In many process facilities, HART communicating field devices have been installed and working for years. However, getting important information such as valve health to the people who need it is a challenge, as diagnostic information is often inaccessible.

A wireless network can be deployed to gain access to valve diagnostics. The THUM adapter is installed on field devices one at a time - significantly reducing the risk and impact of installation error. Plus, the network is scalable. Start with one THUM adapter on a FIELDVUE digital valve controller. Then, as you see the value it brings, add more devices to the network.

Features

- Loop Powered—No batteries; power scavenging technology. No maintenance required.
- Reliable Wireless—The *Wireless*HART communication protocol provides the high level of communication reliability required in process control applications.
- Rugged Construction—The electronics are fully encapsulated and enclosed in an aluminum housing.
- Security—The *Wireless*HART self-organizing mesh network includes encryption, authentication, and authorization mechanisms to provide industry leading security.
- Wireless Connectivity—The THUM adapter enables configuration, calibration, and valve health monitoring via AMS.
- Installation Flexibility—The THUM adapter can be installed anywhere along the control wires.

**FISHER CONTROL-DISK WITH 2052 ACTUATOR,
FIELDVUE DVC6200 DIGITAL VALVE CONTROLLER, AND THE WIRELESS THUM ADAPTER**

Specifications

Functional Specifications

Input

Any 2- or 4-wire HART 5.0 powered device

Output

*Wireless*HART Communication Protocol

Humidity Limits

0-100% relative humidity

Burst Rate

User selectable, 8 sec. to 60 min.

Physical Specifications

Electrical Connections

The THUM adapter is connected in series with the 4-20 mA loop.

Power Requirements

SmartPower™: Power scavenging technology (no battery required)

The THUM adapter draws power by drawing voltage from the loop. The drop is linear from 2.25 volts at 3.5 mA to 1.2 volts at 25 mA, but does not affect the 4-20 mA current signal. Under fault conditions, the maximum voltage drop is 2.5 volts.

Materials of Construction

Enclosure

Housing: ■ Low-copper aluminum or ■ 316 SST
Paint: Polyurethane
M20-Conduit Adapter: SST
M20-Conduit Adapter O-ring: Buna-n

Antenna

Poly butadine terephthalate (PBT)/Polycarbonate (PC) integrated omnidirectional antenna

Weight

THUM Adapter only AL	0.29 kg (0.65 lb)
THUM Adapter only SST	0.5 kg (1.1 lb)
AL THUM Adapter with AL remote kit	3.2 lbs. (1.45 kg)
SST THUM Adapter with SST remote kit	5.8 lbs. (2.65 kg)
AL THUM Adapter with M20 conduit adapter	0.85 lbs. (0.38 kg)
SST THUM Adapter with M20 conduit adapter	1.3 lbs. (0.59 kg)

Enclosure Rating

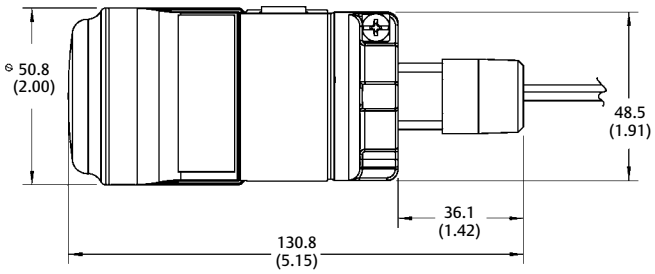
NEMA 4X and IP66

Mounting

May be installed anywhere on the control wiring loop. Typically, mounting will be on or near the control valve. May be mounted directly on the available conduit opening of the terminal box or remotely using remote mount kit.

Mounting Connection: 1/2 NPT external

Dimensions



Performance Specifications

ElectroMagnetic Compatibility (EMC)

Meets all relevant requirements of EN 61326-1 (2006) when installed with shielded wiring. The sub-device must also use shielded wiring for installation.

Vibration Effect

Output unaffected when tested per the requirements of IEC60770-1 field with general application or pipeline with low vibration level (10-60 Hz 0.15mm displacement peak amplitude / 60-500 Hz 2g).

When the THUM adapter is used on wired devices that are subject to vibration levels greater than 2 g, it is recommended that the THUM adapter be remotely mounted.

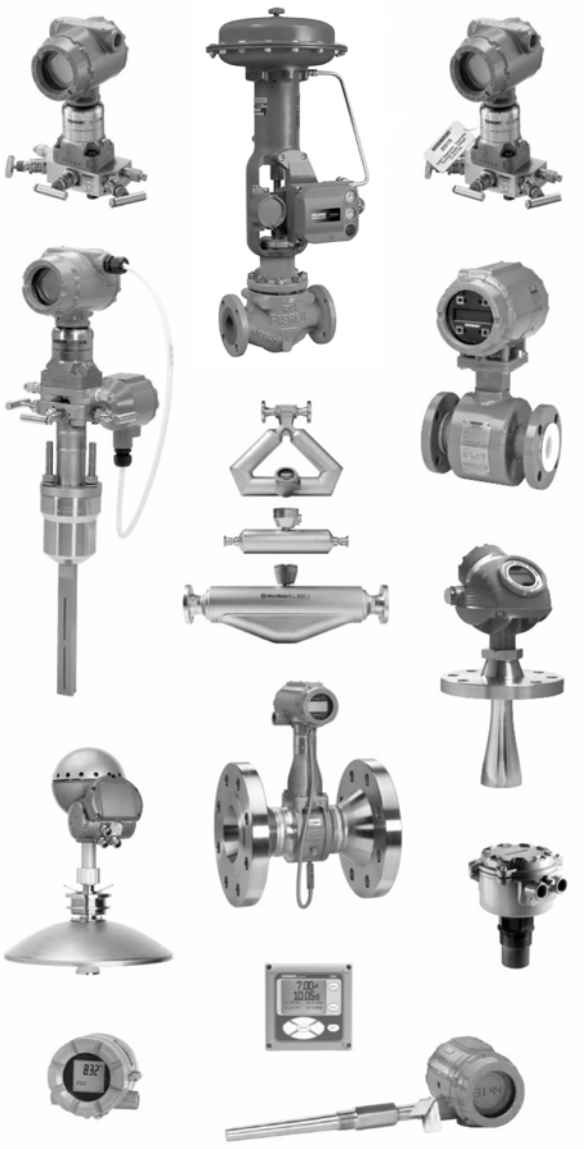
Temperature Limits

Operating and Storage Limits: -40 to 85°C (-40 to 185°F)

Smart Wireless THUM Adapter Applications

Figure 1. THUM Adapter

Figure 2. HART Devices Available from Emerson Automation Solutions



Enable Enhanced Valve Capabilities

- Online, in-service valve testing through ValveLink™ SNAP-ON™ for AMS
- Monitor alerts such as travel deviation, supply pressure, and electronics health with AMS Device Manager
- Trend actual valve position

Gain Access to Advanced Instrument Diagnostics

- Rosemount™ 3051S with Advanced Process Diagnostics
- Micro Motion™ Coriolis Meter Verification with optional AMS Meter Verification SNAP-ON
- Rosemount Radar Echo Curve
- Rosemount Magnetic Flow Meter Verification™ with AMS Device Manager

Efficiently Gather Data from Multivariable Devices

- Rosemount 3051SMV MultiVariable™ and 3095 Mass Flow Transmitters
- Rosemount 3300 and 5300 Radar Level Transmitters
- Micro Motion Coriolis Meters
- Rosemount TankRadar Rex and TankRadar Pro
- Rosemount Magnetic Flowmeters
- Rosemount Multivariable Vortex Flowmeter

Make any HART Device Wireless to Enable New Measurement Points

- Level
- Flow
- Valves
- Liquid and Gas Analytical
- Pressure
- Temperature

Remotely Manage Device and Monitor Health with AMS Device Manager

- Reduce troubleshooting time
- As found, as left data
- Calibration tracking

Product Certifications

European Directive Information

The EC declaration of conformity for all applicable European directives for this product can be found at www.rosemount.com. A hard copy may be obtained by contacting an Emerson representative.

Emerson complies with following directives:
- ATEX Directive (94/9/EC)
- Electro Magnetic Compatibility (EMC) (2004/108/EC)
- Radio and Telecommunications Terminal Equipment Directive (R&TTE) (1999/5/EC)

Telecommunication Compliance

All wireless devices require certification to ensure that they adhere to regulations regarding the use of the RF spectrum. Nearly every country requires this type of product certification. Emerson is working with governmental agencies around the world in order to comply with country directives and laws that govern wireless device usage.

FCC and IC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: This device may not cause harmful interference. This device must accept any interference received, including interference that may cause undesired operation. This device must be installed to ensure a minimum antenna separation distance of 20 cm from all persons.

Ordinary Location Certification for FM

As standard, the transmitter has been examined and tested to determine that the design meets basic electrical, mechanical, and fire protection requirements by FM, a nationally recognized testing laboratory (NRTL) as accredited by the Federal Occupational Safety and Health Administration (OSHA).

Hazardous Locations Certificates

North American Certificates

Factory Mutual (FM) Approvals

FM Intrinsically Safe and Non-incendive
Intrinsically Safe for Class I/II/III, Division 1, Groups A, B, C, D, E, F, G.
Zone Marking: Class I, Zone 0, AEx ia IIC
Temperature Codes T4 (-50°C ≤ Tamb ≤ 70°C)
Non-incendive for Class I, Division 2, Groups A, B, C, D.
Intrinsically safe and non-incendive when installed according to Rosemount Drawing 00775-0010.
Enclosure Type 4X/IP66

CSA - Canadian Standards Association

CSA Intrinsically Safe
Intrinsically Safe for Class I, Division 1, Groups A, B, C, D.
T3C (-50°C ≤ Tamb ≤ 70°C)
Intrinsically Safe when installed according to Rosemount Drawing 00775-0012.
Suitable for Class 1, Division 2, Groups A, B, C, D.
Enclosure Type 4X / IP66

European Certifications

ATEX Intrinsic Safety
Certificate No.: Baseefa09ATEX0125X ⟨Ex⟩ II 1G
Ex ia IIC T4 (-50°C ≤ Tamb ≤ 70°C) IP66 CE 1180
Loop Power: Ui = 30V; Li = 200 mA; Pi = 1.0 W; Ci = 0; Li = 0

Special conditions for safe use (X)
The surface resistivity of the antenna is greater than one gigaohm. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.

The enclosure is made of aluminium alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion if located in a zone 0.

ATEX Type n
Certificate No.: Baseefa09ATEX0131 ⟨Ex⟩ II 3G
Ex nA IIC T4 (-50°C ≤ Tamb ≤ 70°C)
Ui = 45 Vdc MAX IP66 CE 1180

IECEx Certifications

IECEx Intrinsic Safety
Certificate No.: IECEx BAS 09.0050X
Ex ia IIC T4 (-50°C ≤ Tamb ≤ 70°C) IP66

Loop Power: Ui = 30V; Li = 200 mA; Pi = 1.0 W; Ci = 0; Li = 0

Special conditions for safe use (X)
The surface resistivity of the antenna is greater than one gigaohm. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.

The enclosure is made of aluminium alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion if located in a zone 0.

IECEx Type n
Certificate No.: IECEx BAS 09.0058
Ex nA IIC T4 (-50°C ≤ Tamb ≤ 70°C)
Ui = 45 Vdc MAX IP66

Additional Certifications/Appprovals Available

INMETRO, NEPSI, CCoE, KOSHA, and GOST. Contact your Emerson sales office or Local Business Partner for certification specific information.

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